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SPECIFICATION FOR EDIBLE SESAME FLOUR (EXPELLER PRESSED)

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MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 1

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AMENDMENT NO. 1 DECEMBER 1978
TO
IS : 6109-1971 SPECIFICATION FOR EDIBLE SESAME FLOUR (EXPELLER PRESSED)

Alteration

[*Page* 5, *Table* 1, *Sl No.* (vi), *col* 3] — Substitute ' 6·0 ' *for* ' 4·0 '.

Addendum

(*Page* 4, *clause* **2.1**) — Add the following clause after **2.1**:

' **2.1.1** Edible sesame flour (expeller pressed) shall be free from harmful foreign oilcakes, such as castor and *MAHUA*, when tested according to the methods prescribed in **11** and **12** respectively of IS : 7874 (Part I)-1975‡. It shall also be free from *NEEM* cake and other foreign materials, such as jaggery and molasses. '

(*Page* 4, *foot-note*) — Add the following foot-note at the end:

' ‡Methods of sampling and tests for animal feeds and feeding stuffs: Part I General methods. '

(AFDC 37)

Printed at Neelkamal Printers, Delhi, India

Indian Standard
SPECIFICATION FOR EDIBLE SESAME FLOUR (EXPELLER PRESSED)

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 5 May 1971, after the draft finalized by the Foodgrains, Foodgrain Products and Edible Oilseed Flours Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 Edible oilseed flours have a pivotal role in overcoming the widely prevalent protein mal-nutrition in the country. In addition to edible groundnut, cottonseed and soya bean flours, edible sesame flour has considerable scope for its utilization in this field. Sesame flour is rich in methionine and may be successfully used as a protein supplement both in the blended as well as in the processed foods. Therefore, in order to ensure production of edible sesame flours of the right quality this specification is being prepared.

0.3 In the preparation of this standard, due consideration has been given to the provisions of the Solvent Extracted Oil, De-oiled Meal and Edible Flour (Control) order, 1967; the prevention of Food Adulteration Act, 1954 and the Rules framed thereunder. However, this standard is subject to the restrictions imposed under these, wherever applicable.

0.4 With a view to enable the entrepreneurs in producing edible sesame flour (expeller pressed) of a proper quality it is recommended that the method given in Appendix A may be used.

0.4.1 A separate Indian Standard on edible sesame flour (solvent extracted) is being issued.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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*Rules for rounding off numerical values (*revised*).

1. SCOPE

1.1 This standard prescribes the requirements and the methods of sampling and test for edible sesame flour obtained by the expeller process.

1.1.1 This standard shall apply only to edible flour obtained from white sesame seeds.

2. REQUIREMENTS

2.1 General — The expeller pressed edible sesame flour shall have been obtained by expelling de-cuticled (de-husked) sesame seeds. It shall be in the form of flour of white to creamy white colour, uniform in composition and free from insects, rodent hair and excreta, fungal infection or any other extraneous matter, objectionable odour and rancid taste.

NOTE — The appearance, taste and odour shall be determined by organoleptic tests.

2.2 Freedom from Artificial Colouring Matter and Flavouring Agents — Edible sesame flour (expeller pressed) shall be free from any artificial colouring matter and flavouring agents.

2.3 Particle Size — Unless otherwise specified by the purchaser, edible sesame flour (expeller pressed) shall be of such fineness that it passes completely through a 150-micron IS Sieve (*see* IS: 460-1962*).

2.4 The material shall be manufactured in premises using equipment maintained under hygienic conditions, necessary for food processing units (*see* IS: 2491-1963†).

2.5 The material shall also conform to the requirements specified in Table 1.

3. PACKING AND MARKING

3.1 Packing — The material shall be packed in sealed metal containers or jute/hessian bags with polyethylene lining of 40 to 75 microns.

3.2 Marking — The following particulars shall be marked legibly or labelled on each container:

a) Name of the material,
b) Name and address of the manufacturer,
c) Batch or code number, and
d) Net weight.

---

*Specification for test sieves (*revised*).

†Code for sanitary conditions for food processing units.

TABLE 1 REQUIREMENTS FOR EDIBLE SESAME FLOUR (EXPELLER PRESSED)

(*Clause* 2.5)

Sl No.	Characteristic	Requirement	Method of Test, Ref to Appendix of	
			This Standard	IS : 4684-1968*
(1)	(2)	(3)	(4)	(5)
i)	Moisture, percent by weight, *Max*	9·0	—	B
ii)	Crude protein (nitrogen × 6·25) (on dry basis), percent by weight, *Min*	45·0	—	C
iii)	Total ash (on dry basis), percent by weight, *Max*	6·0	—	E
iv)	Acid-insoluble ash (on dry basis), percent by weight, *Max*	0·15	—	F
v)	Fat (on dry basis), percent by weight, *Max*	8·0	—	G
vi)	Acid value of extracted fat, *Max*	4·0	—	H
vii)	Crude fibre (on dry basis), percent by weight, *Max*	5·0	—	J
viii)	Total bacterial count per g, *Max*	50 000	—	L
ix)	Coliform bacteria per g, *Max*	10	—	M
x)	Salmonella bacteria	Nil	—	N
xi)	Oxalic acid content, percent by weight, *Max*	0·5	B	—

*Specification for edible groundnut flour (expeller pressed).

3.2.1 Each container may also be marked with the ISI Certification Mark.

Note — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, and the Rules and Regulations made thereunder. Presence of this mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard, under a well-defined system of inspection, testing and quality control during production. This system, which is devised and supervised by ISI and operated by the producer, has the further safeguard that the products as actually marketed are continuously checked by ISI for conformity to the standard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

4. SAMPLING

4.1 The method for drawing representative samples of the material and the criteria for conformity shall be as prescribed in 4 of IS : 5315-1969*.

5. TESTS

5.1 Tests shall be carried out in accordance with **2.1**, **2.3** and appropriate appendices as specified in col 4 and 5 of Table 1.

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*Method of sampling for milled cereals and pulses products.

5.2 Quality of Reagents — Unless specified otherwise, pure chemicals shall be employed in tests and distilled water (*see* IS:1070-1960*) shall be used where the use of water as a reagent is intended.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the result of analysis.

APPENDIX A

(*Clause* 0.4)

METHOD OF PRODUCTION OF EDIBLE SESAME FLOUR (EXPELLER PRESSED)

A-1. PROCEDURE

A-1.1 For the purposes of expelling only cleaned, healthy, sound and unbroken sesame seeds shall be used. Broken and damaged seeds should not be used.

A-1.2 The cleaned seeds are first decuticled (dehusked). For this purpose, the seeds may first be soaked in water or in solutions of chemicals for varying lengths of time. Soaking period would depend upon the use of wetting agents, when the time could be reduced to within 1 to 2 hours. The soaked seeds are then subjected to a process of scrubbing in a suitable equipment capable of disentangling the outer cuticles from the kernels. The mixture of cuticles and kernels is then spread on wire mesh and washed in a current or spray of water. The cuticles thus get washed away and the remaining kernels are either sun dried or dried by mechanical means. These kernels after suitable adjustments for optimum moisture conditions are rolled and passed through an expeller under conditions to maintain the required protein and fat content in the cake at the specified levels. The oilcake is then ground in a hammer-mill to the desired degree of fineness.

APPENDIX B

[*Table* 1, *Item* (xi)]

DETERMINATION OF OXALIC ACID CONTENT

B-1. APPARATUS

B-1.1 Waring Blender

B-2. REAGENTS

B-2.1 Dilute Hydrochloric Acid — (1 + 1).

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*Specification for water, distilled quality (*revised*).

B-2.2 Ammonium Hydroxide Solution — sp gr 0·880.

B-2.3 Phosphoric Tungstate Reagent — prepared by dissolving 24 g of sodium tungstate in water. To this is then added 40 ml of syrupy phosphoric acid (sp gr 1·75) and the solution is then diluted to 1 litre.

B-2.4 Calcium Chloride Buffer Solution — Dissolve 25 g of anhydrous calcium chloride in 500 ml of 50 percent (*v/v*) glacial acetic acid and add this solution to a solution of 330 g of sodium acetate in water, diluted to 500 ml.

B-2.5 Wash Solution — A 5 percent (*v/v*) solution of acetic acid kept over calcium oxalate at room temperature. Shake the solution periodically and filter before use.

B-2.6 Sulphuric Acid — 10 percent (*v/v*) solution.

B-2.7 Potassium Permanganate Solution — 0·02 N.

B-3. PROCEDURE

B-3.1 Homogenize about 10 g of the material with about 100 ml of water in the blender and transfer the mixture to a 600-ml beaker with the minimum number of washings. Add 2 volumes of dilute hydrochloric acid to each 10 volumes of liquid (to give an approximately normal concentration) and one or two drops of capryl alcohol and boil for 15 minutes. Allow to cool, transfer to a 500-ml volumetric flask, dilute to the mark and after occasional shaking set it aside overnight. Mix and filter through a dry paper. Transfer by means of a pipette, 25 ml of filtrate into a tube fitted with a stopper, add 5 ml of phosphoric tungstate reagent, mix by inverting once or twice and set the mixture aside for 5 hours. Centrifuge for 10 minutes at 3 000 rev/min and radius 150 cm, transfer exactly 20 ml of the clear solution to a 50-ml centrifuge tube and add ammonium hydroxide dropwise from a burette until the solution is alkaline, as indicated by the formation of slight precipitate of phospho-tungstate. Add 5 ml of calcium chloride reagent, stir with a fine glass rod and leave the tube overnight in a refrigerator at 5 to 7°C. Centrifuge for 10 minutes, carefully remove the supernatant liquid and wash the precipitate with 20 ml of wash solution, stirring vigorously with a fine rod until the precipitate is broken up and the impurities dissolve. Centrifuge for 10 minutes, carefully remove the washings, dissolve the precipitate in 5 ml of 10 percent sulphuric acid, place the tube in a water-bath at 100°C for 2 minutes and titrate the oxalic acid with 0·02 N potassium permanganate. Calculate oxalic acid content from the factor that 1 ml of 0·02 N potassium permanganate solution is equivalent to 0·000 90 g of oxalic acid.

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